

**WorleyParsons**

resources &amp; energy

**Infrastructure & Environment**

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14 June 2011

Proj. No.: 308006-00069  
File Loc.: Long Beach

Mr. John Geroch  
Department of Toxic and Substances Control  
5796 Corporate Avenue  
Cypress, California 90630

Dear Mr. Geroch:

**RE: WORK PLAN FOR SOIL GAS CONFIRMATION SAMPLING  
ASSOCIATED PLATING COMPANY, 9636 ANN STREET  
SANTA FE SPRINGS, CALIFORNIA 90670**

## INTRODUCTION

This Work Plan outlines the scope of additional site investigation activities at the above referenced Site (Figure 1), as requested by the Department of Toxic and Substances Control (DTSC) during a meeting conducted on September 9, 2010, between the DTSC, Associated Plating Company (APC) and WorleyParsons. The DTSC had indicated that areas of potential concern (AOPCs) needed to be evaluated for remediation based on current soil gas concentrations rather than relying on historical soil gas concentrations or modeled results.

## OBJECTIVES

The objectives of this site investigation is to collect current volatile organic compound (VOC) soil gas concentration data in order to evaluate the need for remediation based on the previously proposed soil gas cleanup levels for vinyl chloride (VC) and tetrachloroethylene (PCE) of 28 microgram per liter ( $\mu\text{g/L}$ ) and 90  $\mu\text{g/L}$ , respectively. Vinyl chloride and PCE were observed to be the main risk drivers as presented within the Human Health Risk Assessment dated June 23, 2006 (WorleyParsons, 2006). In addition to collecting soil gas samples, soil samples will be collected and analyzed for physical properties and geotechnical parameters, which may be used to recalculate the Johnson and Ettinger (JE) proposed soil gas cleanup levels, if warranted.



## **SCOPE OF WORK**

The scope of the site investigation will be conducted under the direct supervision of a State of California Professional Geologist or Professional Engineer and will include the following tasks:

- Task 1: Pre-Field Activities;
- Task 2: Soil Gas Sampling;
- Task 3: Geotechnical Soil Sampling
- Task 4: Data Analysis and Reporting.

### **Task 1: Pre-Field Activities**

WorleyParsons will coordinate with APC, DTSC, our subcontractors and other concerned parties for all proposed investigation activities. The proposed schedule for field activities at the Site will be coordinated with on-Site personnel, as needed. This task includes: field program set-up; notification of, and coordination with, concerned parties prior to commencing field work; a visual site reconnaissance; marking of borehole locations and utilities at the site, Underground Service Alert notification, and scheduling.

### **Task 2: Soil Gas Sampling**

Nine soil gas boreholes will be advanced by H&P Mobile Geochemistry using a push-probe drill rig. Proposed soil gas boreholes are located in close proximity to previous boreholes B-1, B-17, B-37 through B-39, B-42, and B-46 through B-48 as indicated on Figure 2. These locations are proposed based on previous detections of VC and PCE in soil gas above their respective proposed soil gas cleanup levels.

Soil gas samples will be collected in accordance with the "Active Soil Gas Investigations Advisory" prepared by the DTSC and LARWQCB dated January 28, 2003. Soil gas samples will be collected at each borehole location at approximately 5 feet below ground surface (bgs). A lead rod equipped with a sample port will be attached to a series of three-foot long by two-inch diameter steel rods and advanced to the desired sample depth. The sample port will be sealed during borehole advancement by a sacrificial tip. New 0.25-inch outside diameter (O.D.) Teflon tubing will be slipped onto a stainless steel fitting using the hose barb end of the fitting. The other end of the fitting will have standard threads and an O-ring gasket, which will be lowered down the inside of the rods and threaded to the sample port creating an air tight seal.

After probe emplacement and prior to sampling, an equilibrium period of 30 minutes will be allowed. Based on previous soil gas investigations performed at the Site, soil gas boreholes will be purged and sampled at a flow rate of approximately 200 millilitres per minute (mL/min). This flow rate was determined to be the appropriate flow rate to ensure samples were representative of subsurface conditions. A leak test will be performed at each borehole location using 1,1-Difluoroethane or an equivalent leak check compound. Soil gas samples will be collected in a glass syringe and submitted



for analysis using an on-Site mobile laboratory. All soil gas samples will be analyzed for VOCs in accordance with United States Environmental Protection Agency (USEPA) Method 8260B.

When soil gas sampling is completed, the boreholes will be backfilled with hydrated bentonite chips until slightly below grade. The remaining depression will be completed to match adjacent surface conditions with either asphalt or concrete to flush with grade.

### **Task 3: Geotechnical Soil Sampling**

Three soil boreholes will be advanced by H&P Mobile Geochemistry using a push-probe drill rig. Proposed soil boreholes are located across the site near previous boreholes B-17, B-42 and B-39 as indicated on Figure 2. Soil samples will be collected at each borehole location at approximately 5 feet bgs using a 1 ¾-inch diameter by 2-foot long acetate sleeve. Soil samples will be described for lithologic properties using the Unified Soil Classification System (USCS). All soil samples will be screened in the field for the presence of VOCs. This will be performed by placing a portion of the soil sample in a re-sealable plastic bag. VOC headspace testing will then be conducted inside the plastic bag using a photoionization detector (PID). The results of field VOC headspace testing will be recorded on the field borehole logs. Soil samples will be submitted to PTS Laboratories in Santa Fe Springs and analyzed for the following physical properties and geotechnical parameters:

- Native state permeability to air, total porosity, air-filled porosity, grain and bulk density, and total pore fluid saturation using American Petroleum Institute (API) RP40;
- Moisture content using American Standards for Testing and Materials (ASTM) Method D2216; and
- Grain size analysis using ASTM Method D422.

When soil sampling is completed, the boreholes will be backfilled with hydrated bentonite chips until slightly below grade. The remaining depression will be completed to match adjacent surface conditions with either asphalt or concrete to flush with grade.

### **Task 4: Data Analysis and Reporting**

Following receipt of data deliverables from the chemical and geotechnical testing laboratories, and completion of data reduction, tabulation and analysis, a brief letter report presenting the analytical results of soil gas and geotechnical soil samples will be submitted to the DTSC for review and approval. The report will contain a description of site investigation activities, present and discuss soil gas sampling analytical results, and provide conclusions and recommendations based on these results, including a recommendation of AOPC that will require remediation. The report will be signed and stamped by a State of California Professional Geologist or Professional Engineer.

## **CLOSURE AND LIMITATIONS**

This Work Plan has been prepared for the exclusive use of APC as it pertains to the site investigation to be performed at the APC metal plating facility in the City of Santa Fe Springs, California. Our services have been performed using that degree of care and skill ordinarily exercised under similar



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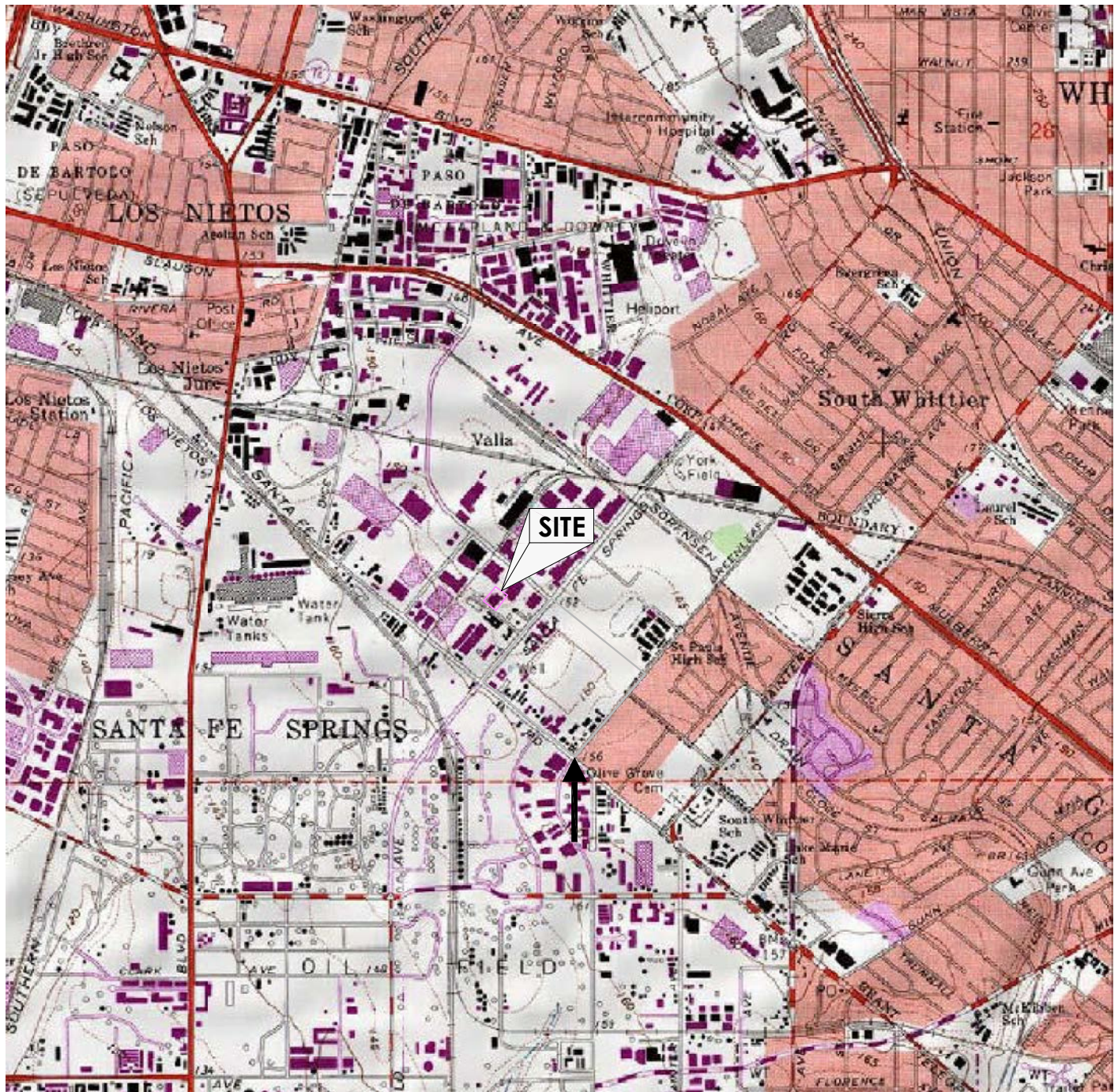
circumstances by reputable, qualified environmental consultants practicing in this or similar locations. No other warranty, either expressed or implied, is made as to the professional advice included in this work plan. These services were performed consistent with our agreement with our client.

We trust that this Work Plan satisfies your current requirements and provides suitable documentation for your records. If you have any questions or require further details, please contact the undersigned at any time at 310-547-6356.

Sincerely,  
WorleyParsons

Janaka Jayamaha,  
Project Manager





Source: United States Geological Survey, "South Whittier,"  
7.5 Minute Quadrangle, 1998



0 2,000

Approximate Scale in Feet

ASSOCIATED PLATING COMPANY  
9636 ANN STREET, SANTA FE SPRINGS, CA



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## SITE LOCATION MAP

SWL

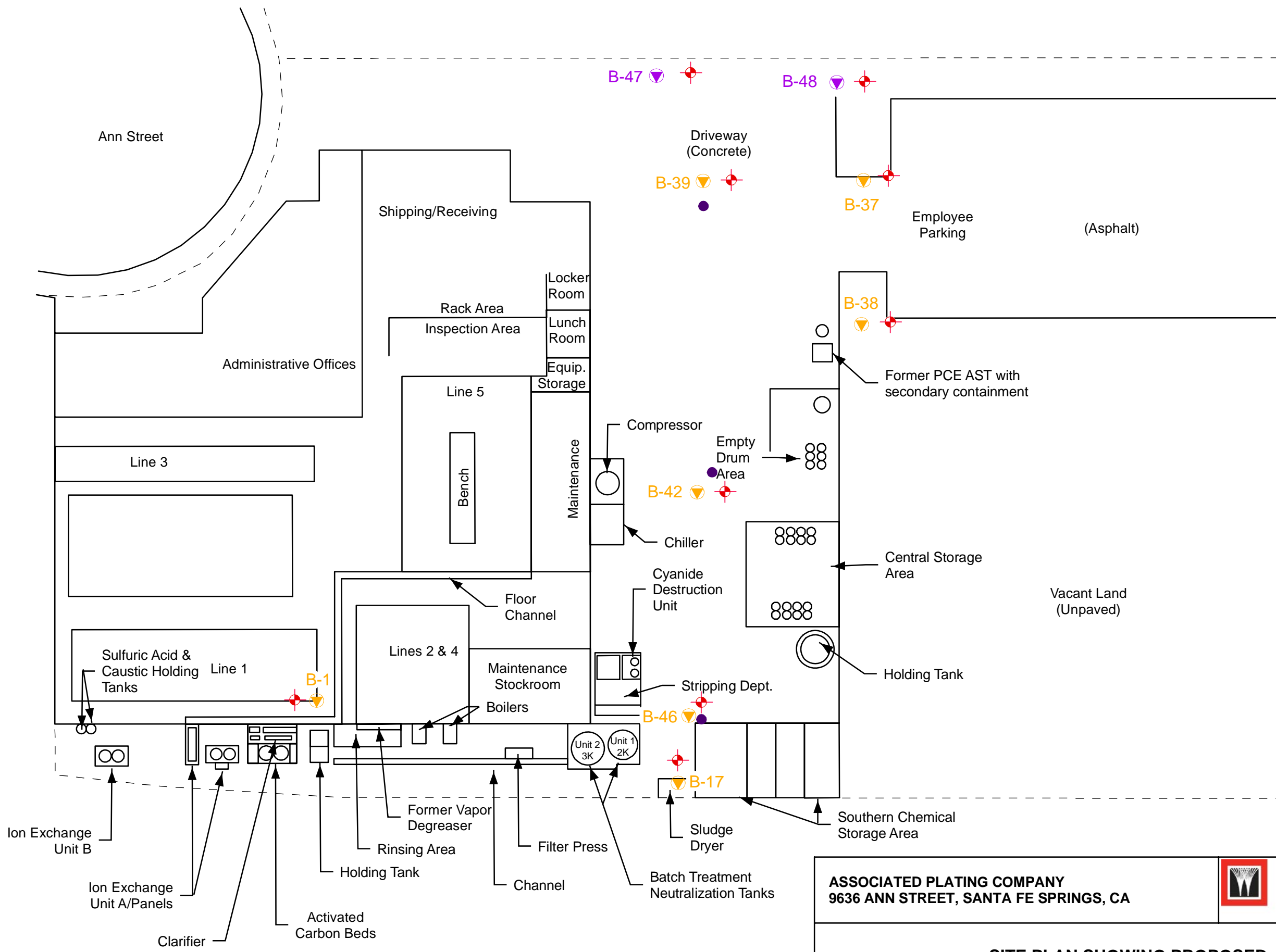
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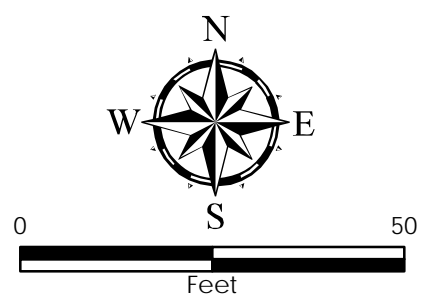


**LEGEND**

- KOMEX 2004 SOIL GAS SAMPLING LOCATION
- WORLEYPARSONS KOMEX 2006 SOIL GAS SAMPLING LOCATION
- WORLEYPARSONS 2011 PROPOSED GEOTECHNICAL SOIL BOREHOLE
- WORLEYPARSONS 2011 PROPOSED SOIL GAS BOREHOLE

**NOTE**

- 1) Proposed locations based on previous detections of VC and PCE in soil gas above their respective proposed soil gas cleanup levels
- 2) All locations approximate



<b>ASSOCIATED PLATING COMPANY</b> 9636 ANN STREET, SANTA FE SPRINGS, CA		 <b>WorleyParsons</b> resources & energy		
<b>SITE PLAN SHOWING PROPOSED BOREHOLE LOCATIONS</b>		SWL	JJ	6/2011
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